

Abstract Submitted
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Boundary Layer Separation from Sports Balls with Seams ANDREW SMITH¹, BARTON SMITH², Utah State University — Results of a study on the behavior of boundary layer separation of various sports balls with seams using particle image velocimetry (PIV) is presented. Our primary focus is the boundary layer state at separation, the location of separation, and the angle formed by the separated shear layer. The study uses moving balls in free space rather than a wind tunnel, which may alter critical pressure gradients and affect separation behavior. The bulk of the results presented will be for non-rotating major league baseballs. The seams on baseballs play two distinct roles: 1) they may cause the laminar boundary layer to become turbulent (when located on the front of the ball) and 2) they often form the separation location (when on the back of the ball). The effect of surface roughness (scuffs) on boundary layer separation was also studied. To better understand the unique effects of baseball seams, other balls are examined, including a cricket ball, a smooth ball, a sliotar (hurling ball), an artificially roughened leather baseball, and a printed baseball with exaggerated seams.

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